Draft General WDRs for Winery Process Water Stakeholder Outreach Meeting

Central Coast Regional Water Board, San Luis Obispo

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CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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California Wine Industry

- California wine is an important economic engine
  - $220 billion annual national economic impact
  - $71.2 billion annual impact to California's economy
    - 260,000 jobs in California wineries
    - Additional 90,000 California jobs related to the industry
    - Estimated 485,050 national jobs related to the industry
  - Winery wages estimated to be $25 billion annually
  - California's "wine country" drives 23.6 million tourist visits and estimated $9.7 dollar expenditures
  - $10.8 billion in tax revenue ($4.4 billion state, $6.4 billion federal)

Winery Process Water Issues

- Biochemical oxygen demand (BOD)
  - Nuisance odors
  - Can contribute to groundwater degradation
  - Relatively easily treated or managed
- Nitrogen compounds
  - Organic nitrogen can be oxidized to nitrate
  - Nitrate is a groundwater contaminant
  - Can be treated or managed to minimize impact
- Salinity (fixed dissolved solids [FDS])
  - Primary sources of salinity are sanitation activities
  - Salinity is a groundwater contaminant
  - Difficult to treat, source control is the best approach

Dissolved Solids and Salinity

- Salinity is a measure of dissolved solids in water
- Total dissolved solids (TDS) is the sum of volatile (organic) and fixed (inorganic) solids
- Volatile dissolved solids (VDS) are biodegradable (sugar)
  - VDS will be degraded in a well operated land discharge system
  - VDS is generally not a groundwater quality concern
- Fixed dissolved solids (FDS) are not biodegradable (NaCl)
  - FDS does not degrade when applied to land
  - FDS is a groundwater quality concern
- California Division of Drinking Water limits
  - Secondary MCL 900 µmhos/cm (≈576 mg/L)
  - Upper Level 1,600 µmhos/cm (≈1,020 mg/L)

California Water Code

- Winery process water contains waste constituents that can degrade water quality
- California Water Code establishes requirements for permitting discharges of waste
- Permitting agencies
  - Regional Water Boards are the primary permitting agencies
  - State Water Board issues statewide general WDRs
    - Notice of applicability is issued by the Regional Water Boards

General Order Goals

- Prepare a general order for wineries that is applicable statewide
- Partner with the Industry in developing the general order
  - Similar goals – maintain economic viability of the industry
  - Maintain water quality
- Reduce the cost of compliance
  - Applications, technical reports, monitoring, etc.
- Standardize requirements, improve predictability

General Order Advantages

- General WDRs (general orders) are appropriate to:
  - Address a “class of discharges” where the wastewater is:
    - Produced by similar operations
    - Similar waste characteristics
    - Require similar treatment standards
- General order benefits
  - General orders do not expire (they do require regular updates)
  - Streamlined permitting – much less costly
  - Requirement predictability
  - Greatly reduced permitting delays
  - Level economic playing field

How to Protect Water Quality

- Water quality can be protected through implementation of best practicable treatment or control (BPTC) measures
  - Implementation of good management practices
  - Using cleaning chemicals appropriately
  - Replacing some chemicals with alternatives
  - Removing or lining ponds when appropriate
  - Employing adequate land application acreage
  - Source control in the facility
  - Pretreatment when needed
  - Containerizing high strength waste streams for off-site disposal when needed
- How to know what is needed?

Statewide Winery Order Approach

- Uses a tiered approach – requirements are appropriate for the facility
- Tiers are based on the number of cases of wine produced
- BPTC measures are based on the tier ranking
  - A higher threat to water quality requires more BPTCs
- Monitoring and reporting program is also tiered
  - More monitoring/reporting for higher threat discharges

Tier Ranking Determination

Tier	Cases of Wine (cases/year) [1]	Approximate Gallons of Wine (gal/year) [2]	Approximate Winery Process Water Generation (gal/year) [2,3]
Tier 1	> 84,000	> 200,000	> 1,000,000
Tier 2	25,201-84,000	60,001-200,000	300,001-1,000,000
Tier 3	8,401-25,200	20,001-60,000	100,001-300,000
Tier 4	< 8,400	< 20,000	< 100,000
Tier 5	N/A	N/A	Tank and Haul [4]

1. A case is defined as twelve (12) 750-mL bottles or approximately 9.0 liters (2.38 gallons) of wine.
2. Tier ranking is based on cases of wine. Gallons of wine and process water are provided for illustration purposes.
3. Winery process water generation rate estimated to be 12 gallons of process water per case of wine. (Approximately 5 gallons of winery process water per gallons of wine produced.) Numbers for “gallons of wine” and “winery process water generation” are rounded.
4. Tier 5 facilities may be any size but must containerize all process water and properly dispose of the process water at a Regional Water Board-permitted facility.

General Order Modular Format

- The general order is arranged in modules as follows:
  - Discharge Prohibitions
    - General prohibitions that apply to all wineries
  - Discharge Specifications
    - General specifications that apply to all wineries
    - Land Application Areas
    - Process Water Ponds
    - Limited Dispersal Areas (leach fields)
    - Septic Tank and/or Advanced Treatment System
    - Tank and Haul Facilities
- The monitoring and reporting program is also modular format

Compliance Considerations

- The general order does not contain effluent limits
  - Loading limits for land application areas are included
- Wineries are allowed to make compliance business decisions
  - Activities considered to be higher threat require investigation
    - Unlined wastewater ponds, septic tank/leach field (larger wineries)
  - Alternatives to performing investigations – implement BPTC
- A few activities are considered high threat and are prohibited or require additional authorization
  - Discharging water softening brine on-site
  - Operation of a recreational vehicle holding tank dump station

Groundwater Monitoring

- In general, groundwater monitoring is not required
- Groundwater monitoring may be required for some high threat activities
  - Process Water Ponds
    - Highest threat: unlined pond – requires monitoring wells
    - Moderate threat: low permeability lined pond – requires groundwater sampling at 5-year intervals
    - Lowest threat: synthetically lined pond – no groundwater sampling required
  - Tier 1 Land Application Area
    - Significant process water application rate can result in excessive salinity loading

Process Water Pond Evaluation

- Evaluation method is described in General Order Attachment C
- Required for all process water ponds (Tiers 1 through 4)
- Purpose is to determine:
  - If pond is adequately protective of water quality
  - If a pond requires lining to minimize percolation
  - If groundwater monitoring is required
- Evaluation can be avoided by either decommissioning the pond or lining the pond with a synthetic liner

Land Application Area

- Many wineries apply their process water to a land application area
- Land application areas must:
  - Be cropped to take up nitrogen
    - Nitrogen application not exceed crop uptake rates
  - Comply with biochemical oxygen demand (BOD) loading limits
    - 300 lbs/acre/day (daily maximum)
    - 100 lbs/acre/day (5-day cycle average)
  - Comply with hydraulic loading limit for Tiers 2, 3, and 4
    - 100,000 gal/acre/year (approximately 3.7 in/acre)
- Tier 1 Land application area additional requirement
  - If process water consists of more than 30-percent of the total water applied, groundwater monitoring is required

Limited Dispersal Area Evaluation

- Evaluation method is described in Attachment D
- Required for Tier 3 facilities using a limited dispersal area (LDA) year-round
  - Alternatively, Tier 3 facilities can divert process water from the LDA during traditional irrigation months
- Evaluation can be avoided by diverting the winery process water from the LDA during irrigation months
  - Irrigation months are months when evapotranspiration exceeds precipitation
- Considering adding the LDA evaluation approach for Tier 1 and 2 facilities

Facility Salinity Criterion (FSC)

- The FSC only applies to Tier 1 facilities
  - FSC is not an effluent limit
  - Compares source water quality to process water quality
  - Allows for consideration of water conservation practices, which increase concentrations but not loading rates
  - FSC specifies an effluent mineralization concentration
    - FDS concentration increase greater than 400 mg/L
    - If the FSC is exceeded, the Regional Water Board Executive Officer can request a Salinity BPTC Evaluation and Implementation Report
  - FSC is a method to identify a site that might not be implementing salinity control requirements

Implementation/Compliance Schedule

- Wineries not in immediate compliance are allowed a schedule to make improvements or perform technical studies
- General Order Attachment B contains the schedule
  - Prepare technical reports
  - Engineering design
  - Construct improvements
- The implementation schedule for required improvements or technical studies will be included in the notice of applicability issued by the Regional Water Board
  - Schedules allow 6, 18, or 24 months for implementation of requirement

Order Development Schedule

- State Water Board hearing target date is late 2019
- Adopting an order is a public process
  - The process is a “project” under CEQA
- Administrative draft transmitted February 11, 2019 for informal comments
  - Comment period closed April 5, 2019
- Formal public comment period will come later
  - Subscribe to the winery email listserv to receive notices
- Winery Order Internet webpage <https://www.waterboards.ca.gov/water_issues/programs/waste_discharge_requirements/winery_order.html>

Email Subscription / Feedback

To subscribe to email listserv:

1. Go to the Water Boards homepage <https://www.waterboards.ca.gov>
2. Click on “Subscribe” on the top right corner of the page
3. Click on “State Water Resources Control Board”
4. Enter email, name, and check the box for “Statewide General WDRs for Wineries” (found under “Water Quality”)
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6. Follow instructions in the confirmation email you receive

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